

IT IS CLAIMED:

1. A method for preparing liposomes comprising:
selecting a compound having room temperature water solubility capable of
5 exhibiting at least a two-fold increase in response to a condition;
selecting liposomes of a size effective to inhibit precipitation of the
compound when entrapped in a liposome; and
entrapping the compound in the liposomes in a supersaturated state.

10 2. The method of claim 1, wherein selecting the compound includes
selecting a compound having an increased water solubility at room temperature in
response to a condition selected from the group consisting of: (i) increasing
solvent temperature, (ii) adding a co-solvent, and (iii) changing solvent pH.

15 3. The method of claim 1, wherein selecting the liposomes includes
selecting liposomes that have a liposome size of between about 60 nm to about
1000 nm.

20 4. The method of claim 1, wherein selecting the liposomes includes
preparing liposomes having an entrapped compound at liposome size intervals
between about 60 nm to about 1000 nm and analyzing the liposomes for the
presence or absence of a precipitated compound.

25 5. The method of claim 1, wherein selecting the liposomes includes
preparing liposomes having an entrapped compound at liposome size intervals
between about 60 nm to about 1000 nm and analyzing the liposomes for the
presence or absence of a precipitated compound.

30 6. The method of claim 1, wherein the entrapping includes preparing a
solution of lipids.

7. The method of claim 6, wherein the preparing includes preparing a
solution of lipids that include a lipid derivatized with a hydrophilic polymer.

8. The method of claim 6, wherein the preparing includes preparing a solution of lipids effective to form a rigid lipid bilayer.

5 9. The method of claim 1, further including removing from an external liposome suspension medium the condition selected to maintain the drug above the room temperature solubility limit.

10 10. A composition according to claim 1, wherein the compound is entrapped in a central compartment of the liposomes in a supersaturated condition.

15 11. A liposome composition comprising:
a suspension of liposomes composed of a vesicle-forming lipid, and
a compound entrapped in the liposomes, wherein the compound prior to entrapment is maintained in the liposomes in a supersaturated state.

20 12. The composition of claim 11, wherein the compound exhibits a two-fold increase in aqueous solubility in response to a condition selected from the group consisting of: (i) increasing solvent temperature, (ii) adding a co-solvent, and (iii) changing solvent pH.

13. The composition of claim 11, wherein the liposomes have a liposome size of between about 60 nm to about 1000 nm.

25 14. The composition of claim 1, wherein the liposomes further comprise a lipid derivatized with a hydrophilic polymer chain.

15. The composition of claim 1, wherein the liposomes comprise saturated vesicle-forming phospholipids.

30 16. A method for preparing liposomes comprising:
preparing an aqueous concentrated solution of a compound suitable for entrapment in an internal aqueous compartment of the liposomes;
hydrating a lipid film or lipid solution with a concentrated solution of the

compound to form liposomes; and

sizing the liposomes to a size effective to inhibit formation of precipitated compound, thereby maintaining the entrapped compound in a supersaturated state.

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17. The composition of claim 11, wherein selection of a liposome size includes a liposome size effective to inhibit formation of precipitated drug in an internal liposome compartment.

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18. The composition of claim 14, wherein the hydrophilic polymer chain is polyethylene glycol.

continued